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United States Department of Agriculture
Soil Conservation Service
Montana Agricultural Experiment Station
Bozeman, Montana

MONTANA WATER SUPPLY OUTLOOK

Snowpack and Streamflow Forecasts as of January 1, 1983

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P.O. Box 98
Bozeman, Montana 59715
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The Montana Water Supply Outlook is a publication of the U.S. Soil Conservation Service. The SCS administers the Cooperative Snow Survey Program in cooperation with other federal, state and private agencies, organizations, and individuals.

The report is prepared by SCS, Snow Survey and Water Supply Forecast Staff, P.O. Box 98, Bozeman, Montana.

FEDERAL STATE PRIVATE
COOPERATIVE SNOW SURVEYS
Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro electric power generation, navigation, mining and industry
The Conservation of Water begins with the Snow Survey

Early season snowpack variable

Presently, the mountain snowpack is near average over most of the areas west of the Continental Divide and in southwest Montana. A small area near the Red Rock River headwaters and the southern part of the Madison River, overlapping the Montana-Idaho border, has a well above average amount of water stored in the snow.

The lower Yellowstone, headwaters of the Blackfoot, Marias, Teton, Sun and Dearborn Rivers, as well as smaller mountain ranges in central Montana, have below average snowpack.

The snow season started in September with some areas near Anaconda, Red Lodge, Bozeman, Yellowstone National Park, and Lost Trail Pass receiving heavy snowfall. The first half of October was generally dry with some improvement in snowfall in the latter part of the month. November snow was above average in some southwest drainages and in northwest Montana. The Big Hole area received below average snow but most other areas had about average mountain snow buildup. December was a good snowy month in most areas. The northwest corner of the state had some deficiency, while the Yellowstone River headwaters had near average amounts.

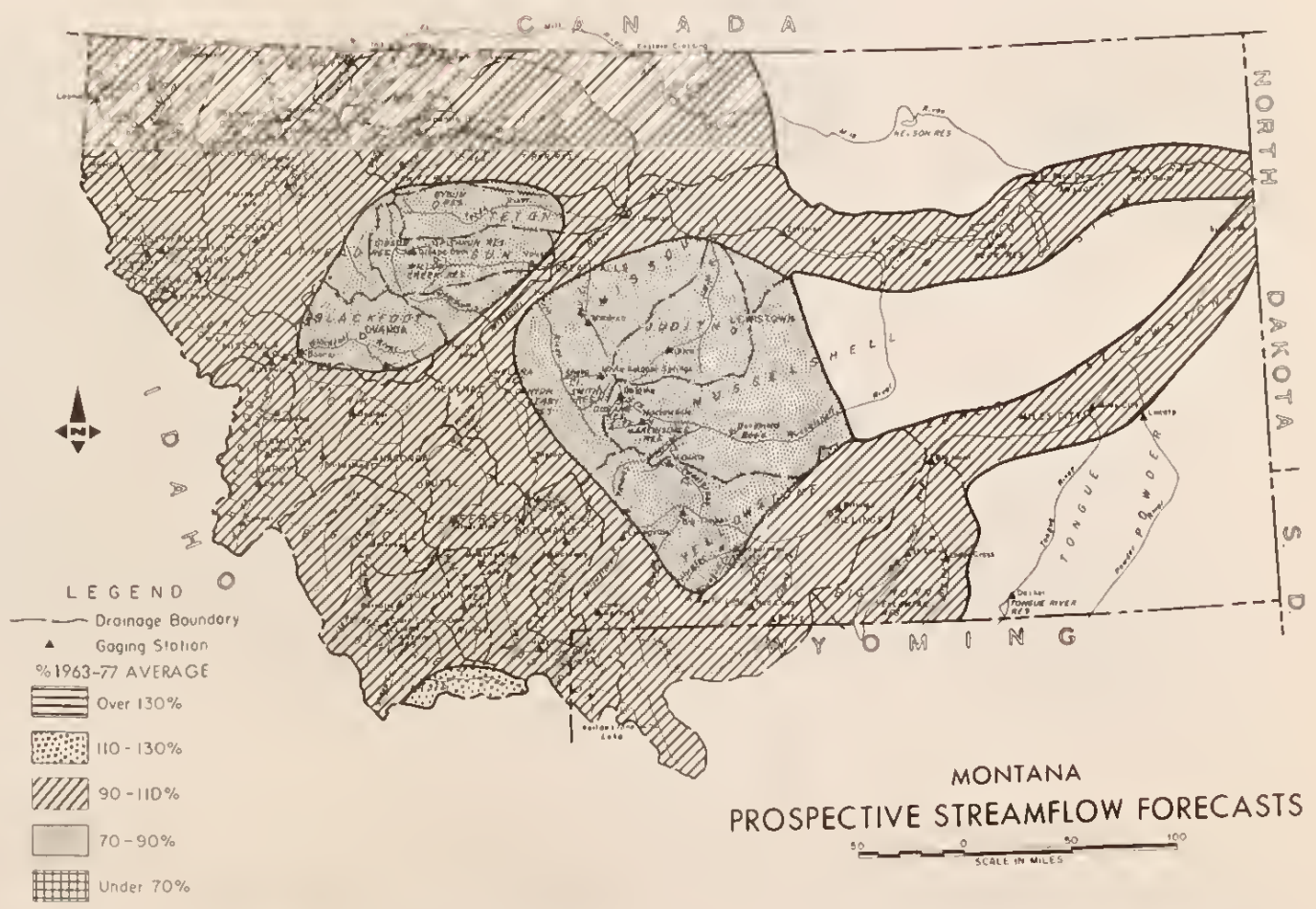
Temperatures were fairly uniform with very few warm periods and frequent snowfall so that most lower elevation snowfall remained through the new year. The snow is deeper than usual in most areas with very little settlement or crusting. In some areas, the low elevation snow is much better on a percent of average basis than in higher elevations.

Early streamflow forecasts near normal

Based on present snowpack and soil moisture levels, runoff during spring and summer is expected to be near to a little below average in most areas, except for well above average runoff in the Red Rock River above Lima Reservoir. Below average runoff is forecast for the Blackfoot, Sun, Teton and Dearborn Rivers, and most streams in central Montana.

By January 1, 1983, only about 40 percent of the season's snowpack has been deposited on the mountain watersheds. Projected streamflows can change considerably, depending on storm patterns over the next few months, and critical decisions relating to water supply should be delayed until a larger part of the season's snowpack has accumulated.

Forecasts for smaller streams will be released after February snow surveys, when weather patterns and the seasonal mountain snowpack become better defined.



Missouri River & Hudson Bay Drainages

STREAMFLOW FORECASTS

BASIN STREAM and or FORECAST POINT	PERIOD	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average
		April - September				April - July			
BIG HOLE RIVER near Melrose		785	99		792	720	99		730
MADISON RIVER near McAllister (4)		920	103	1024	B92	730	103	797	706
GALLATIN RIVER near Gateway		600	105		572	510	105		48B
MISSOURI RIVER at Toston (7)		2696	I01	3470	2,671	2350	I01	3072	2,330
SUN RIVER at Gibson Dam (8)		510	88	596	580	465	88	544	529
MISSOURI RIVER at Fort 8enton (9)		4081	98		4,148	3570	98		3,640
MARIAS RIVER near Shelby		540	94	521	577	500	94	494	532
MISSOURI RIVER at Virgelle (11)		4488	94		4,793	3980	94		4,238
MISSOURI RIVER near Landusky (11)		4991	96		5,214	4400	96		4,586
MISSOURI RIVER below Fort Peck Dam (11)		4691	95		4,929	4160	95		4,381
INFLOW LAKE SAKAKAWEA, ND (11)		12780	95		13,450	I1620	95		12,239

(1) Adjusted for storage in Lima Reservoir.
(2) Adjusted for storage in Lima and Clark Canyon Reservoirs.
(3) Adjusted for storage in Hebgen Lake.
(4) Adjusted for storage in Hebgen Lake and Ennis Lake.
(5) Sum of West Fork Hyalite Creek and East Fork Hyalite Creek above the Reservoir.
(6) Adjusted for storage in Middle Creek Reservoir.
(7) Adjusted for storage in Lima, Hebgen, Ennis & Clark Canyon Reservoirs.
(8) Adjusted for storage in Gibson Reservoir & diversions.
(9) Adjusted for storage in Lima, Clark Canyon, Hebgen, Ennis, Gibson, Pishkun, Willow Creek & Canyon Ferry Reservoirs.
(10) Adjusted for storage in Two Medicine Reservoir & diversions in Two Medicine Canal.
(11) Adjusted for all upstream reservoirs.
(12) Flow at Eastern Crossing minus St. Mary's Canal.
(13) Adjusted for storage in Lake Sherburne.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

SUMMARY of SNOW MEASUREMENTS
(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF Last Year	THIS YEAR'S SNOW WATER AS PERCENT OF Average
8eaverhead	11	132	157
Ruby	3	97	126
Big Hole	8	94	104
8oulder	9	127	109
Jefferson	31	115	127
Madison	20	114	127
Gallatin	16	97	97
Missouri Headwater	67	110	119
West-side Missouri (Toston-Cacade)	8	125	108
Smith-Belt-Arrow	5	83	71
Missouri Main-stem	13	97	83
Teton & Sun	4	95	81
Marias	3	106	81
Marias-Teton-Sun	7	101	81
Judith-Musselshell	5	83	71
Milk	6	134	93
Bear Paws	5	140	74
Missouri (Total)	97	107	I07
Saskatchewan			
St. Mary's	2	131	98
Bow River in Alberta	--	---	---

Yellowstone River Drainage

STREAMFLOW FORECASTS

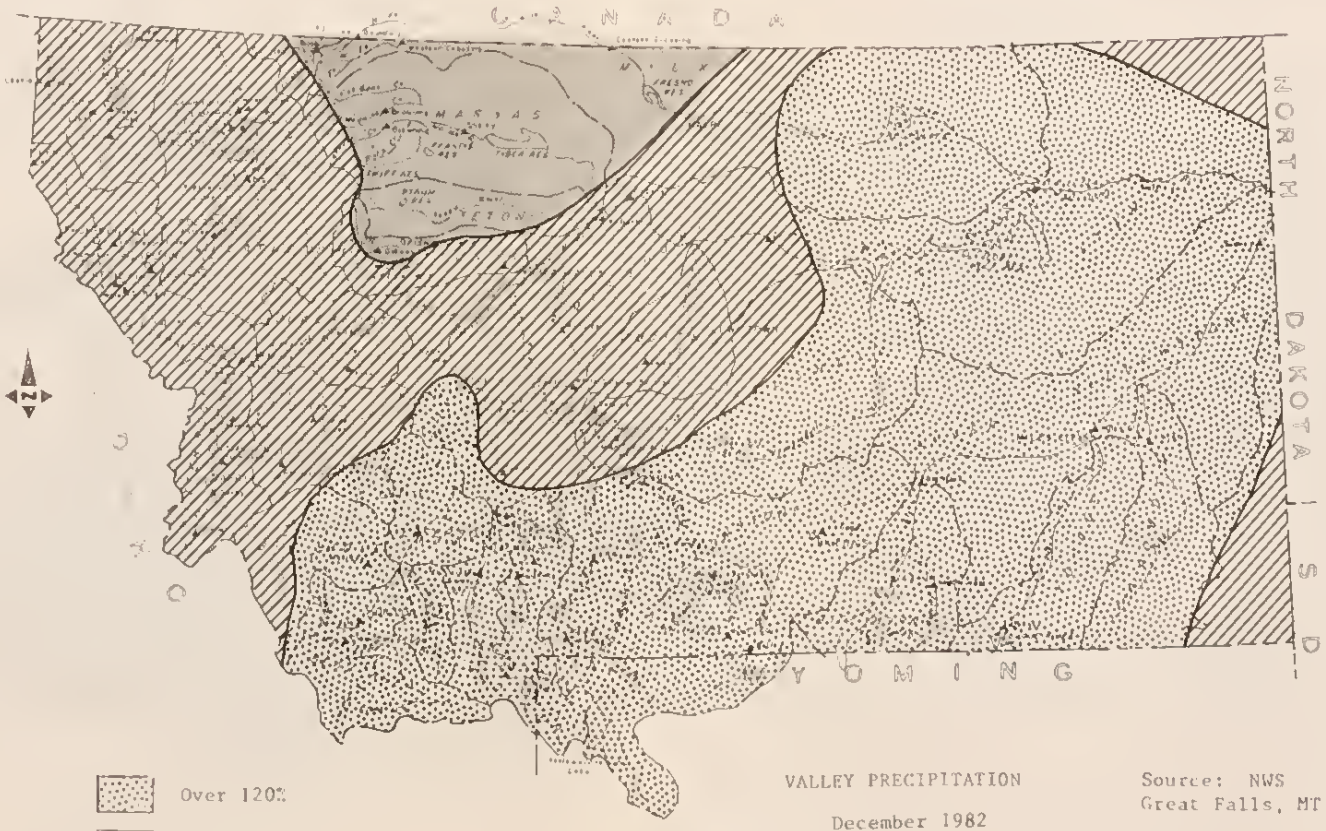
BASIN STREAM and or FORECAST POINT	PERIOD	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average
		April - September				April - July			
YELLOWSTONE RIVER at Corwin Springs		1975	94	2497	2,102	1640	94	1978	1,749
YELLOWSTONE RIVER near Livingston		2300	93		2,47I	1900	93		2,048
CLARKS FORK RIVER near 8elfry		580	90		644	510	90		564
YELLOWSTONE RIVER at Billings		4314	92	5171	4,6B2	3660	92	4307	3,979
BIGHORN RIVER near St. Xavier (3)		2056	I01	2116	2,034	1B80	I01	1693	1,B6I
YELLOWSTONE RIVER at Miles City (4)		6663	93		7,142	5800	93		6,243
YELLOWSTONE RIVER near Sidney (5)		7410	95		7,806	6460	95		6,805

(1) Adjusted for storage in Mystic Lake.
(2) Adjusted for storage in Cooney Reservoir.
(3) Adjusted for storage in 8uffalo 8ill, 8oysen, 8ull Lake, Pilot 8utte and 8ighorn Reservoirs.
(4) Adjusted for storage in Bull Lake, 8uffalo 8ill, Boysen, Pilot Butte, Bighorn and Tongue River Reservoirs.
(5) Adjusted for reservoirs shown in (4) and diversions into the Lower Yellowstone Canal.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

SUMMARY of SNOW MEASUREMENTS
(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF Last Year	THIS YEAR'S SNOW WATER AS PERCENT OF Average
Upper Yellowstone ab Livingston	13	86	84
Shields	4	86	76
8oulder & Stillwater	--	---	---
Rock Creek & Clark's Fork	10	105	88
Yellowstone (ab Bighorn River)	27	93	84
Bighorn/Wyoming	--	---	---
Little 8ighorn	--	---	---
Bighorn (Total)	--	---	---
Tongue	--	---	---
Powder	--	---	---
Yellowstone (Total)	27	93	84



VALLEY PRECIPITATION
December 1982

Source: NWS Great Falls, MT

SNOW SURVEY DATA

SNOW January 1983

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (inches)	THIS YEAR Water Content (inches)	PAST RECORD Water Content (inches) Last Year	PAST RECORD Water Content (inches) Average
ARCH FALLS	7350	K/27	24	5.0	4.6	5.9
ASHLEY DIVIDE	4820	K/31	20	3.4	3.5	-
ASHLEY LAKE	4000	K/31	15	2.6	2.6	-
BADGER PASS	6900	1/06	48	13.5A	15.0	21.2
BADGER PASS PILLOW	6900	1/01	SP	3.1	10.5	-
BANFIELD MOUNTAIN	5600	K/27	44	10.0	9.8	11.6
BANFIELD MOUNTAIN PILLOW	5600	K/27	SP	9.8	8.4	9.7
BARKER LAKES	8250	K/30	40	10.6	6.3	-
BARKER LAKES PILLOW	8250	1/01	SP	11.8	6.7	-
BASIN CREEK	7180	K/28	28	6.6	5.6	-
BASIN CREEK PILLOW	7180	1/01	SP	4.8	3.8	-
BEAGLE SPRINGS PILLOW	8850	1/01	SP	5.6	4.3	-
BEAR PAW SKI AREA	5200	K/30	14	1.8	1.0	2.6
BIG SKY	7700	1/05	32	7.9	8.5	7.0
BLACK BEAR	7950	1/04	81	25.3	21.8	17.3
BLACK BEAR PILLOW	7950	1/01	SP	20.8	21.1	16.4
BLACK PINE	7100	K/29	22	4.1	4.6	5.2
BLACK PINE PILLOW	7100	K/29	SP	4.8	6.8	6.4
BLOODY DICK PILLOW	7600	K/29	SP	5.4	7.4	-
BLUE LAKE	5900	1/06	42	10.0A	8.5	10.8
BOULDER MOUNTAIN PILLOW	7950	1/01	SP	9.6	10.3	-
BOX CANYON PILLOW	6670	1/01	SP	3.5	3.3	-
BRIDGER BOWL	7250	K/28	37	9.0	10.6	13.1
BRIDGER BOWL PILLOW	7250	K/28	SP	8.5	11.3	12.3
CALVERT CREEK PILLOW	6450	K/29	SP	3.6	5.3	6.0
CARROT BASIN	9000	K/28	69	19.4	17.2	16.6
CARROT BASIN PILLOW	9000	K/28	SP	15.9	14.6	12.2
CASHE CREEK PILLOW	7800	1/01	SP	2.7	4.1	-
CEDAR GROVE	4100	K/27	27	4.7	-	5.3
CHESSMAN RESERVOIR	6200	K/27	24	3.2	1.2	1.4
CLOVER MEADOW PILLOW	8600	1/01	SP	7.0	9.4	-
COLE CREEK	7850	K/30	43	9.7	5.0	8.6
COLE CREEK PILLOW	7850	K/30	SP	10.7	5.5	8.5
COMBINATION	5600	K/29	16	3.0	2.0	2.5
COMBINATION PILLOW	5600	K/29	SP	3.4	2.4	2.8
COOKE STATION	8150	K/21	32	6.5	-	8.6
COPPER BOTTOM	5200	K/29	18	3.3	-	-
COPPER BOTTOM PILLOW	5200	K/29	SP	5.1	4.8	7.4
COPPER CAMP	6950	K/29	40	10.0	-	-
COPPER CAMP PILLOW	6950	K/29	SP	10.4	12.0	19.6
COPPER CREEK	5700	K/29	25	5.0	-	-
COPPER LAKE CREEK	6100	K/29	34	7.5	-	-
COYOTE HILL	4200	K/27	23	4.0	4.0	4.0
CRYSTAL LAKE PILLOW	6100	1/01	SP	6.0	5.6	-
DAISY PEAK	7600	K/29	24	4.8	4.6	-
DALY CREEK PILLOW	5780	1/01	SP	6.0	5.4	-
DARKHORSE LAKE PILLOW	8600	1/01	SP	8.9	15.0	-
DEADMAN CREEK	6450	K/27	21	3.5	4.2	5.6
DEADMAN CREEK PILLOW	6450	K/27	SP	3.5	4.1	5.2
DESERT MOUNTAIN	5600	1/06	29	8.1	6.2	7.0
DEVILS SLIDE	8100	K/27	40	10.0	10.1	10.5

SNOW January 1983

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (inches)	THIS YEAR Water Content (inches)	PAST RECORD Water Content (inches) Last Year	PAST RECORD Water Content (inches) Average
MOUNT LOCKHART	6400	K/30	34	7.4	8.0	9.7
MOUNT LOCKHART PILLOW	6400	K/30	SP	7.3	8.6	8.6
MULE CREEK PILLOW	8350	1/01	SP	5.0	-	-
NEVADA CREEK PILLOW	6480	1/01	SP	5.0	4.6	-
NEWTON MOUNTAIN	5600	K/30	60	16.3	12.4	-
NEZ PERCE CAMP PILLOW	5650	1/01	SP	5.9	6.5	-
NOISY BASIN	6040	1/06	86	25.3	17.2	18.6
NOISY BASIN PILLOW	6040	1/01	SP	19.3	14.0	17.7
NORTH FORK JOCKO	6330	K/30	63	17.0	17.4	-
NORTHEAST ENTRANCE	7400	K/21	16	2.8	3.4	3.7
NORTHEAST ENTRANCE PILLOW	7400	K/21	SP	3.3	3.6	4.3
OPHIR PARK	7150	1/01	30	7.6	6.6	8.8
PETERSON MEADOWS	7200	K/28	26	4.6	4.0	4.9
PETERSON MEADOWS PILLOW	7200	K/28	SP	5.0	4.3	5.1
PICKFOOT CREEK PILLOW	6650	1/01	SP	5.6	6.0	-
PIKE CREEK	5930	K/30	45	11.0	8.8	-
PIKE CREEK PILLOW	5930	K/30	SP	11.9	9.4	-
PIPESTONE PASS	7200	K/28	16	2.9	1.8	2.4
PLACER BASIN PILLOW	8830	1/01	SP	6.9	6.5	-
POORMAN CREEK	5100	K/27	52	14.5	12.5	15.9
POORMAN CREEK PILLOW	5100	K/27	SP	12.6	10.8	12.9
PORCUPINE PILLOW	6500	1/01	SP	3.4	3.0	-
RED TOP	5260	K/30	49	12.7	9.6	-
ROCKER PEAK	8000	K/28	30	5.8	6.2	7.9
ROCKER PEAK PILLOW	8000	K/28	SP	6.6	7.4	7.3
ROCKY BOY	4700	K/30	12	1.2	1.0	1.7
ROCKY BOY PILLOW	4700	K/30	SP	1.8	0.8	1.8
SADDLE MOUNTAIN	7940	K/29	46	11.2	12.4	11.1
SADDLE MOUNTAIN PILLOW	7940	K/29	SP	11.3	13.2	12.3
SHOWER FALLS	8100	K/27	44	10.6	11.1	11.9
SHOWER FALLS PILLOW	8100	1/01	SP	10.8	11.1	11.8
SILVER RUN	6630	K/30	16	1.9	.3	-
SILVER RUN PILLOW	6630	K/30	SP	1.7	0.6	-
SKALKAHO SUMMIT	7260	K/27	41	8.0	12.6	-
SKALKAHO SUMMIT PILLOW	7260	K/27	SP	8.1	13.5	-
SKYLARK TRAIL PILLOW	6200	1/01	SP	10.5	12.3	-
SOUTH FORK SHIELDS	8100	1/03	41	11.4	-	-
SOUTH FORK SHIELDS PILLOW	8100	1/01	SP	7.4	8.0	-
SPOTTED BEAR MOUNTAIN	7000	1/06	32	7.0A	5.3	6.9
SPUR PARK	8100	K/27	32	7.6	9.6	9.8
SPUR PARK PILLOW	8100	K/27	SP	8.6	9.6	10.7
STAHL PEAK	6050	K/27	61	14.8	15.4	23.4
STAHL PEAK PILLOW	6050	K/27	SP	14.6	14.0	18.2
STORM LAKE	7780	K/28	39	8.2	4.6	5.6
STUART MOUNTAIN	7400	K/28	48	13.0	15.5	13.4
SUCKER CREEK	3960	K/30	8	.4	.6	0.3
TAYLOR ROAD	4080	K/30	14	1.0	1.0	1.9
TEN MILE LOWER	6600	K/29	27	4.2	2.2	2.8
TEN MILE MIDDLE	6800	K/29	31	5.1	4.6	4.6
TEN MILE UPPER	8000	K/30	34	6.4	5.6	5.6
TEPEE CREEK	8000	K/30	35	8.0	8.8	6.6
TEPEE CREEK PILLOW	8000	K/30	SP	7.4	7.3	6.3
TRUMAN CREEK	4060	K/31	12	2.0	1.5	-
TV MOUNTAIN	6800	K/28	33	7.4	7.2	7.4
TWELVEMILE CREEK	5600	K/28	34	7.9	10.7	8.4
TWELVEMILE CREEK PILLOW	5600	1/01	SP	6.0	8.9	7.4
TWENTY-ONE MILE	7150	1/05	39	9.6	5.7	7.8

SNOW January 1983

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (inches)	THIS YEAR Water Content (inches)	PAST RECORD Water Content (inches) Last Year	PAST RECORD Water Content (inches) Average
DISCOVERY BASIN	7050	K/27	27	4.0	4.0	6.0
DIVIDE PILLOW	7900	1/01	SP	6.8	6.7	4.6
DIX HILL	6400	1/01	24	6.2	3.5	5.1
EMERY CREEK	4350	1/06	36	10.8	7.7	7.2
EMERY CREEK PILLOW	4350	1/01	SP	7.6	5.9	-
FISH CREEK	8000	K/28	32	7.7	5.8	-
FISHER CREEK	9100	K/21	56	13.8	16.0	17.7
FISHER CREEK PILLOW	9100	K/21	SP	13.0	15.8	16.4
FLATTOP MOUNTAIN PILLOW	6300	1/01	SP	20.5	15.6	22.2
FLEECER RIDGE	7500	K/31	21	4.8	5.7	5.1
FOURTH OF JULY	3450	K/30	23	4.3	2.7	-
FRIDAY HILL	4620	K/30	41	9.2	6.4	-
FROHNER MEADOWS	6480	K/27	30	5.0	2.6	4.1
FROHNER MEADOWS PILLOW	6480	K/27	SP	5.0	3.2	4.3
GARVER CREEK	4250	K/27	30	5.5	5.0	5.9
GARVER CREEK PILLOW	4250	K/27	SP	5.6	4.9	5.0
GIBBONS PASS	7100	K/29	44	10.6	11.2	9.1
GRAVE CREEK	4300	K/27	38	7.3	6.4	9.0
GRAVE CREEK PILLOW	4300	1/01	SP	9.6	7.1	8.8
GRIZZLY PEAK	8640	K/30	40	9.6	4.8	8.2
HAND CREEK	5030	K/29	25	4.7	5.3	-
HAND CREEK PILLOW	5030	1/01	SP	4.9	5.1	-
HAWKINS LAKE	6450	K/27	54	14.2	12.2	14.6
HAWKINS LAKE PILLOW	6450	K/27	SP	12.5	10.6	14.1
HEART LAKE TRAIL	4800	K/30	31	7.6	10.7	6.6
HEBGEN DAM	6550	1/03	35	7.4	4.6	5.0
HELL ROARING DIVIDE	5770	K/30	50	13.0	9.2	14.5
HOLBROOK	4530	1/06	20	3.5A	4.0	4.2
HOOD MEADOW	6600	K/27	27	4.3	4.4	5.5
HOODOO BASIN	6000	K/30	70	21.2	24.6	22.3
HOODOO BASIN PILLOW	6000	1/01	SP	18.0	17.5	20.6
HOODOO CREEK	5900	K/30	66	18.8	20.8	18.8
JOHNSON PARK	6450	K/29	14	2.6	2.2	-
KINGS HILL	7500	K/27	24	4.5	5.6	7.5
KIWANIS CAMP	3720	K/30	8	.6	-	0.8
KRAFT CREEK PILLOW	4750	1/01	SP	6.7	5.0	-
LAKE CREEK	6100	K/30	26	5.4	3.0	4.8
LAKEVIEW CANYON	6930	K/29	39	9.8	3.0	5.4
LAKEVIEW RIDGE	7400	K/29	37	9.2	3.4	5.0
LAKEVIEW RIDGE PILLOW	7400	1/01	SP	10.3	4.2	-
LEMHI RIDGE PILLOW	8100	K/28	SP	4.2	5.9	4.9
LICK CREEK	6860	K/27	36	5.2	4.7	4.3
LICK CREEK PILLOW	6860	K/27	SP	4.1	5.0	4.4
LONE MOUNTAIN	8880	1/04	36	10.9	15.8	10.5
LOST HORSE	5940	K/28	44	10.4	18.2	13.8
LOWER TWIN PILLOW	7900	1/01	SP	12.7	10.8	-
MADISON PLATEAU	7750	1/04	51	14.5	9.0	9.6
MADISON PLATEAU PILLOW	7750	1/01	SP	12.9	11.7	10.1
MANY GLACIER	4960	K/26	36	8.6	5.9	-
MANY GLACIER PILLOW	4960	1/01	SP	8.1	5.3	-
MARIAS PASS	5250	K/31	34	7.8	6.0	6.6
MAYNARD CREEK	6210	K/28	26	5.7	5.3	5.5
MAYNARD CREEK PILLOW	6210	K/28	SP	4.5	4.8	5.3
MONUMENT PEAK PILLOW	8600	1/01	SP	7.8	11.0	-
MOULTON RESERVOIR	6850	K/29	19	3.0	2.0	-

SNOW January 1983

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (inches)	THIS YEAR Water Content (inches)	PAST RECORD Water Content (inches) Last Year	PAST RECORD Water Content (inches) Average
TWIN CREEKS	3580	1/06	30	5.5A	5.5	5.2
TWIN LAKES	6510	K/28	54	13.2	22.0	18.2
TWIN LAKES PILLOW	6510	K/28	SP	13.1	18.4	17.9
UPPER HOLLAND LAKE	6200	K/28	45	11.0	13.0	-
WALDRON	5600	K/30	17	3.2	3.0	3.7
WALDRON PILLOW	5600	1/01	SP	3.9	3.2	4.8
WARM SPRINGS	7800	K/29	32	6.8	9.0	-
WARM SPRINGS PILLOW	7800	K/29	SP	8.3	10.5	-
WEASEL DIVIDE	5450	K/27	62	15.5	12.9	-
WEST YELLOWSTONE	6700	1/04	34	7.6	3.5	5.1
WEST YELLOWSTONE PILLOW	6700	1/01	SP	5.8	4.3	4.1
WHISKEY CREEK	6800	1/04	47	11.5	8.0	8.6
WHISKEY CREEK PILLOW	6800	1/01	SP	9.6	7.9	7.7
WHITE MILL	8700	K/21	43	9.7	12.5	13.8
WHITE MILL PILLOW	8700	K/21	SP	9.0	11.5	12.1
WILLOW CREEK	6500	K/30	25	4.4	3.2	3.9
ABOVE BURKE (ID)	4100	K/29	35	7.8	5.2	9.3
BIG SPRINGS (ID)	6500	K/27	50	11.7	9.4	7.8
CAMP CREEK (ID)	6580	1/03	36	9.0	3.0	4.8
ISLAND PARK (ID)	6290	K/27	48	10.8	7.5	6.2
KILGORE (ID)	6320	K/30	35	8.8	6.1	4.5
LOLO PASS (ID)	5230	K/30	36	8.8	11.2	11.5
LOOKOUT (ID)	5250	K/30	60	16.8	12.2	13.7
MOOSE CREEK (ID)	6200	K/30	37	8.8	10.6	6.9
SAVAGE PASS (ID)	6170	K/30	40	9.3	11.6	10.2
SAWTELL MOUNTAIN (ID)	8720	K/27	80	23.1	20.2	14.1
TARGHEE PASS (ID)	6980	K/27	40	9.0	6.0	6.2
VALLEY VIEW (ID)	6680	K/27	44	10.1	6.1	6.4
WHITE ELEPHANT (ID)	7710	K/27	56	15.3	13.1	8.9
CANYON PILLOW (WY)	7940	1/04	SP	5.6	8.7	-
EAST ENTRANCE (WY)	6960	K/30	23	5.9	5.7	4.4
LAKE CAMP (WY)	7780	K/31	20	3.3	4.8	3.6
LUPINE CREEK (WY)	7380	K/30	23	4.4	3.3	4.8
NORRIS BASIN (WY)	7500	1/01	22	4.7	6.1	5.0
OLD FAITHFUL (WY)	7400	1/01	33	7.7	6.3	-
SYLVAN LAKE PILLOW (WY)	8420	K/30	SP	10.5	-	-
SYLVAN PASS (WY)	7100	K/30	24	6.0	8.0	5.9
THUMB DIVIDE (WY)	7980	K/28	41	9.7	9.4	8.6
TOGWOTEE PASS (WY)	9580	K/29	51	13.2	21.6	13.4
WOLVERINE (WY)	7650	K/31	24	5.1	-	-
FERNIE (BC)	3510	K/30	24	4.5	2.1	3.7
FERNIE EAST (BC)	4100	K/30	33	7.2	3.9	5.3
FERNIE NE (BC)	3510	K/30	27	5.7A	2.7	4.0
FIDELITY MOUNTAIN (BC)	6130	K/30	52	13.1	17.8	24.6
GLACIER (BC)	4100	K/30	31	8.1	9.9	13.7
GRAY CREEK LOWER (BC)	5080	K/31	28	7.3	6.2	6.9
KICKING HORSE (BC)	5410	K/31	20	3.9	4.1	7.7
MORRISSEY RIDGE (BC)	6100	K/29	52	13.1	7.8	12.4
MOYIE MOUNTAIN (BC)	6360	K/30	33	7.6	5.8	9.1

SEE PAGE 4 FOR LATE ARRIVING DATA.

Average based on 1963-77 period. A - Aerial observation; water content estimated
SP - Snow Pillow observations; water content only. * Estimated from SNOTEL.

NOTE: K = December

Columbia River Drainage

STREAMFLOW FORECASTS

BASIN STREAM and of FORECAST POINT	PERIOD	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average
		April - September			
KOOTENAI RIVER below Libby Dam (1)		6,940	96	7,246	5,930
KOOTENAI RIVER at Leonia (1)		8,760	99	8,883	7,620
BLACKFOOT RIVER near Bonner		875	86	1,017	790
CLARK FORK RIVER above Milltown (6)		860	102	843	745
CLARK FORK RIVER above Missoula		1,735	93	1,859	1,535
BITTERROOT RIVER near Darby		550	91	602	504
BITTERROOT RIVER at Missoula (9)		1,390	90	1,543	1,275
CLARK FORK RIVER below Missoula		3,125	92	3,405	2,810
CLARK FORK RIVER at St. Regis		4,130	91	4,521	3,730
NORTH FORK FLATHEAD RIVER near Columbia Falls		1,890	96	1,969	1,710
MIDDLE FORK FLATHEAD RIVER near West Glacier		1,950	102	1,911	1,785
SOUTH FORK FLATHEAD RIVER near Columbia Falls (10)		2,140	93	2,302	2,005
FLATHEAD RIVER at Columbia Falls (10)		6,120	97	6,330	5,635
FLATHEAD RIVER near Polson (11)		7,100	96	7,394	6,530
CLARK FORK RIVER near Plains (11)		11,500	93	12,340	10,500
CLARK FORK RIVER at Whitehorse Rapids (12)		12,900	94	13,781	11,700

BASIN STREAM and of FORECAST POINT	PERIOD	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average
		April - July			
KOOTENAI RIVER below Libby Dam (1)		5,930	96	6,178	
KOOTENAI RIVER at Leonia (1)		7,620	99	7,727	
BLACKFOOT RIVER near Bonner		790	86	920	
CLARK FORK RIVER above Milltown (6)		745	102	730	
CLARK FORK RIVER above Missoula		1,535	93	1,651	
BITTERROOT RIVER near Darby		504	91	552	
BITTERROOT RIVER at Missoula (9)		1,275	90	1,416	
CLARK FORK RIVER below Missoula		2,810	92	3,069	
CLARK FORK RIVER at St. Regis		3,730	91	4,078	
NORTH FORK FLATHEAD RIVER near Columbia Falls		1,710	96	1,782	
MIDDLE FORK FLATHEAD RIVER near West Glacier		1,785	102	1,750	
SOUTH FORK FLATHEAD RIVER near Columbia Falls (10)		2,005	93	2,159	
FLATHEAD RIVER at Columbia Falls (10)		5,635	97	5,827	
FLATHEAD RIVER near Polson (11)		6,530	96	6,806	
CLARK FORK RIVER near Plains (11)		10,500	94	11,222	
CLARK FORK RIVER at Whitehorse Rapids (12)		11,700	93	12,519	

BASIN STREAM and of FORECAST POINT	PERIOD	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average
		April - June			
KOOTENAI RIVER below Libby Dam (1)					
KOOTENAI RIVER at Leonia (1)		6,090	99		6,150
BLACKFOOT RIVER near Bonner		680	86		794
CLARK FORK RIVER above Milltown (6)		625	102		613
CLARK FORK RIVER above Missoula		1,305	93		1,408
BITTERROOT RIVER near Darby		435	91		480
BITTERROOT RIVER at Missoula (9)		1,090	90		1,211
CLARK FORK RIVER below Missoula		2,395	91		2,618
CLARK FORK RIVER at St. Regis		3,190	91		3,492
NORTH FORK FLATHEAD RIVER near Columbia Falls		1,440	96		1,498
MIDDLE FORK FLATHEAD RIVER near West Glacier		1,500	102		1,470
SOUTH FORK FLATHEAD RIVER near Columbia Falls (10)		1,750	93		1,884
FLATHEAD RIVER at Columbia Falls (10)		4,800	97		4,964
FLATHEAD RIVER near Polson (11)		5,540	96		5,779
CLARK FORK RIVER near Plains (11)		8,930	94		9,507
CLARK FORK RIVER at Whitehorse Rapids (12)		9,940	93		10,633

(1) Adjusted for storage in Lake Koocanusa.
(2) Adjusted for storage in Silver Lake, diversions to and pumping from Georgetown Lake.
(3) Adjusted for storage in Georgetown Lake, diversions from and pumping to Silver Lake.
(4) Sum Flint Creek at Maxville and Boulder Creek at Maxville.
(5) Sum of North Fork Lower Willow Creek near Hall and South Fork Lower Willow Creek near Hall.
(6) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.
(7) Adjusted for storage in Painted Rocks Reservoir.
(8) Adjusted for diversion into Sunset Highline Canal.
(9) Difference in observed flow Clark Fork above and below Missoula.
(10) Adjusted for storage in Hungry Horse Reservoir.
(11) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.
(12) Adjusted for storage in Hungry Horse Reservoir, Flathead Lake and Noxon Rapids Reservoir.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF Last Year	THIS YEAR'S SNOW WATER AS PERCENT OF Average
East Kootenay/BC.	8	113	75
Kootenai/Montana	12	111	87
Kootenai above Bonners Ferry...	20	112	83
Little Bitterroot	--	---	---
N. Fk. Flathead..	7	123	84
M. Fk. Flathead..	6	119	94
S. Fk. Flathead..	7	132	119
Swan	3	138	120
Flathead	23	127	100
Stillwater & Whitefish.....	1	141	89
Clark Fork above Blackfoot	20	119	102
Blackfoot	7	100	81
Upper Clark Fork above Missoula .	27	112	93
Bitterroot	11	74	87
Lower Clark Fork below Missoula .	11	98	96
Clark Fork (Total w/o Flathead)...	49	94	92
Pend O'Reille (Clark Fork & Flathead)	72	106	95
Columbia (Pend O'Reille & Kootenai)	92	107	93

Map of snow survey sites

A map of Montana Snow Survey Sites is included in this Water Supply Outlook Report. Please keep this copy, because future issues this season will not include a map.

A few extra copies are available from the Snow Survey Office. Maps showing only SNOTEL sites are also available. If needed, additional copies may be requested.

Snowfall pH

Again this winter, snow surveyors will make pH measurements of snow at selected snow courses in Montana.

Additional studies are being done by Montana State University and various state and federal agencies to determine areas vulnerable to low pH snowfall or precipitation.

LATE ARRIVING DATA

SNOW January 1983

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (inches)	THIS YEAR Water Content (inches)	PAST RECORD Water Content (inches) Last Year	PAST RECORD Water Content (inches) Average
Big Coulee	5100	1/03	15	3.7	-	2.9
Highwood Divide	5650	K/28	24	5.2	-	4.8
Highwood Station	4600	1/03	15	3.0	0.0	2.3
Lubrecht Flume	4680	1/06	15	3.6	3.0	2.4
Lubrecht Flume Pillow	4680	1/01	SP	3.7	2.5	2.2
Lubrecht Forest #3	5450	1/06	17	3.2	2.0	2.9
Lubrecht Forest #4	4650	1/06	9	1.6	1.3	1.5
Lubrecht Forest #6	4040	1/06	10	2.0	1.6	1.5
Lubrecht Hydroplot	4200	1/06	17	2.4	2.6	2,8
North Fork Elk Creek	6250	1/05	30	5.3	5.4	5.1

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH December 1982

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage This Year	Usable Storage Last Year	Usable Storage Average
	COLUMBIA				
Kootenai	Koocanusa	5,748.2	3,645.0	3,655.0	---
Flathead	Hungry Horse	3,451.0	3,224.0	2,603.0	2,624.0
	Flathead Lake	1,791.0	1,284.0	1,171.0	1,428.0
	Camas (4)	45.2	29.0	20.0	19.4
	Mission Valley (8)	100.3	40.3	19.6	34.4
Clark Fork	Georgetown Lake	31.0	28.2	29.8	28.2
	Lower Willow Creek	4.9	1.3	0.9	1.4
	Nevada Creek	12.6	4.9	4.5	4.3
	Noxon Rapids	334.6	327.0	322.8	318.7
Bitterroot	Painted Rocks	31.7	---	---	18.3
	Como	34.9	---	---	9.0
	MISSOURI				
Beaverhead	Lima	84.0	47.5	25.0	38.8
	Clark Canyon	257.2	172.2	155.6	132.7
Ruby	Ruby	38.8	22.3	22.4	20.4
Madison	Hebgen Lake	377.5	274.2	275.3	241.5
	Ennis Lake	41.0	30.4	30.4	35.6
Gallatin	Middle Creek	8.0	3.7	3.7	2.9
Missouri	Canyon Ferry	2,043.0	1,821.0	1,747.0	1,753.0
	Hauser & Helena	61.9	63.0	63.0	61.2
	Lake Helena	10.4	10.9	10.9	10.2
	Holter Lake	81.9	80.5	78.1	76.2
	Fort Peck Lake	18,910.0	16,040.0	14,590.0	15,820.0
Smith	Smith River	10.6	7.3	5.7	6.4
	Newlan Creek	12.4	8.9	---	---
Musselshell	Bair	7.0	5.0	2.4	4.2
	Martinsdale	23.1	17.4	10.4	10.0
	Deadman's Basin	72.2	64.8	---	44.7
Sun	Gibson	99.1	54.0	39.3	38.6
	Willow Creek	32.2	23.4	22.4	20.6
	Pishkun	32.0	20.5	19.3	16.7
Marias	Lower Two Medicine	11.9	---	---	6.1
	Four Horns	19.2	---	---	13.2
	Swift	30.0	11.7	5.8	12.9
Milk	Lake Frances	111.9	85.7	78.2	70.9
	Elwell (Tiber)	1,347.0	689.9	514.7	545.6
	Beaver Creek	3.5	3.0	0.7	1.4
	Fresno	127.2	15.5	34.5	68.2
	Nelson	66.8	48.7	58.9	45.0
	HUDSON BAY				
St. Mary's	Lake Sherburne	64.3	31.4	12.6	17.0
	YELLOWSTONE				
Stillwater	Mystic Lake	21.0	8.9	8.7	13.1
Clark's Fork	Cooney	27.4	15.0	0	14.2
Tongue	Tongue River	68.0	29.1	22.2	30.4
Bighorn	Bighorn Lake	1,356.0	985.0	941.5	580.3

AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

GOVERNMENT AGENCIES
- Canada
  - Department of the Environment
    - Atmospheric Environment Service
    - Water Management Service
  - British Columbia Ministry of Environment
    - Inventory and Engineering Branch, Hydrology Section
  - Alberta Environment
    - Technical Services Division
- Federal
  - Department of the Army - Corps of Engineers
  - Department of Agriculture - Forest Service
  - Soil Conservation Service
  - Department of Commerce - National Environmental Satellite Service
  - National Weather Service
  - Department of Interior - Bureau of Indian Affairs
  - Fish and Wildlife Service
  - Geological Survey
  - National Park Service
  - Bureau of Reclamation
  - Department of Energy - Bonneville Power Administration

STATE AGENCIES
- Montana Conservation Districts
- Montana Department of Fish, Wildlife and Parks
- Montana Department of Natural Resources and Conservation
- Montana State University - Agricultural Experiment Station
- University of Montana - School of Forestry

PRIVATE ORGANIZATIONS
- The Anaconda Company
- Big Sky of Montana
- Butte Water Company
- Flathead Valley Community College
- Montana Power Company

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

U.S. GOVERNMENT PRINTING OFFICE
1983 693-047

SNOW COURSES AND RELATED DATA MEASURING SITES

MONTANA

1983

SCALE 1:2,000,000

20 0 20 40 60 80 MILES

LEGEND

- Snow Data Measuring Site
- Watershed Boundary
- Sub-watershed Boundary

Source
Base map prepared by SCS, WTSC Carto Unit from USGS 1:1,000,000 Natl. Atlas.
Thematic detail compiled by state staff.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE USDA—SCS—FORT WORTH, TEXAS 1982

M7-0-22024

INDEX TO MONTANA SNOW COURSES AND DATA SITES

Snow Course	Elev.	Sec.	Twp.	Range	Sensors In Addition to Snow Course[1]	Drainage Basin
Abundance Lake	8800	7	3S	11W		Big Hole
Ambrose	6480	28	9N	18W		Bitterroot
Arch Falls	7350	3	5S	6E		Gallatin
Ashley Divide	4820	10	28N	23W	P	Flathead
Ashley Lake	4000	8	28N	23W	P	Flathead
*Badger Pass	6900	4	27N	11W	A,P,S,T	Teton-Marias-Sun
Bald Eagle Peak	5700	6	27N	31W		Kootenai
Bald Ridge	7500	11	4N	10E		Upper Yellowstone
Banfield Mountain	5600	4	32N	30W	S,P,T,W	Kootenai
Baree Creek	5500	36	26N	31W		Kootenai
Baree Midway	4600	31	26N	30W		Kootenai
Baree Trail	3800	5	25N	30W		Kootenai
*Barker Lakes	8250	17	4N	12W	S,P,T	Clark Fork
*Basin Creek	7180	31	1N	7W	S,P,T	Clark Fork
Bassoo Peak	5150	11	24N	25W		Flathead
*Beagle Springs	8850	6	16S	11W	S,P,T	Beaverhead
Bear Basin	8150	9	6S	3E		Gallatin
Bear Paw Ski Area	5200	21	28N	16E	P	Milk
Beaver Lake	5900	31	28N	11W		Flathead
Berry Meadow	7000	8	5N	5W		Jefferson
Big Coulee	5100	10	19N	9E		Missouri Main Stem
Big Creek	6750	7	22N	18W		Flathead
Big Sky	7700	30	6S	3E	P	Gallatin
Big Sky Meadow	6350	35	6S	3E		Gallatin
Big Snowy	7150	25	12N	17E		Judith
*Black Bear	7950	27	15S	5E	S,P,T	Madison
Black Mountain	7750	34	7N	8W		Clark Fork
*Black Pine	7100	26	8N	15W	S,P,T	Clark Fork
*Bloody Dick	7600	12	8S	16W	S,P,T	Beaverhead
Blue Lake	5900	25	28N	11W	A	Teton-Marias-Sun
Bots Sots	7750	35	7S	18E		Upper Yellowstone
*Boulder Mountain	7950	1	9N	3E	S,P,T	Missouri Main Stem
*Box Canyon	6700	28	6S	12E	S,P,T	Upper Yellowstone
Boxelder Creek	5100	24	28N	16E	P	Milk
*Bozeman Experiment Farm	4775	7	2S	5E	S,P,T,NSC	Gallatin
Branham Lakes	8850	5	4S	3W		Ruby
Bridger Bowl	7250	25	1N	6E	S,P	Gallatin
Bristow Creek	3900	2	32N	30W		Kootenai
Brush Creek Timber	5000	12	30N	26W		Kootenai
Bull Mountain	6600	18	2N	9W		Big Hole
Cabin Creek	5200	34	23N	10W		Teton-Marias-Sun
Call Road	8050	21	8S	2W		Madison
*Calvert Creek	6430	34	2N	14W	S,P,T	Big Hole
Camp Misery	6400	30	28N	18W		Flathead
Camp Senia	7890	2	8S	18E		Upper Yellowstone
Carrot Basin	9000	18	10S	4E	S,P	Gallatin
Carter Creek	7400	22	6S	7W		Beaverhead
*Cashe Creek	7800	8	9S	3E	S,P,T	Gallatin
Cedar Grove	3760	35	28N	31W		Kootenai
Chessman Reservoir	6200	2	8N	5W		Missouri Main Stem
Chicken Creek	4060	14	33N	23W		Flathead
Christensen Ranch	6000	34	7S	7W	P,NSC	Beaverhead
*Clover Meadow	8600	28	9S	2W	S,P,T	Ruby
*Cole Creek	7850	26	7S	19E	S,P,T	Upper Yellowstone
Colley Creek	6300	34	6S	10E	P	Upper Yellowstone
*Combination	5600	7	8N	14W	S,P,T	Clark Fork
Cooke Station	8150	19	9S	15E		Upper Yellowstone
*Copper Bottom	5200	15	15N	8W	S,P,T	Clark Fork
*Copper Camp	6950	3	15N	9W	S,P,T	Clark Fork
Copper Creek	5700	1	15N	9W		Clark Fork
Copper Lake Creek	6100	3	15N	9W		Clark Fork
Copper Mountain	7700	13	3N	7W		Jefferson
Cottonwood Creek	6400	14	7N	8W		Clark Fork
Coyote Hill	4200	12	18N	16W		Clark Fork
Crevice Mountain	8400	22	9S	9E		Upper Yellowstone
*Crystal Lake	6100	19	12N	18E	S,P,T	Judith
Dad Creek Lake	8400	24	12S	13W		Beaverhead
Daisy Peak	7600	34	11N	11E	P	Musselshell
*Daly Creek	5780	16	5N	18W	S,P,T	Bitterroot
*Darkhorse Lake	8600	4	8S	16W	S,P,T	Big Hole
Davis Creek	5400	20	37N	33W		Kootenai
*Deadman Creek	6450	23	12N	8E	S,P,T	Missouri Main Stem
Desert Mountain	5600	30	31N	18W		Flathead
Devil's Slide	8100	14	5S	6E		Gallatin
Discovery Basin	7050	21	6N	13W		Clark Fork
*Divide	7800	14	12S	4W	S,P,T	Ruby
Dix Hill	6400	24	11N	8W	P	Clark Fork
Eagle Creek	7000	2	5N	10E		Musselshell
East Boulder S	9250	14	7S	12E	A	Gallatin
East Fork R S.	5400	16	2N	17W		Bitterroot
El Dorado Mine	7800	23	8N	12W		Clark Fork
Elk Horn Springs	7800	21	4S	12W		Beaverhead
Elk Peak	8000	10	8N	8E		Missouri Main Stem
*Emery Creek	4350	20	31N	18W	S,P,T	Flathead
Fatty Creek	5500	8	22N	18W		Flathead
Fish Creek	8000	5	1S	7W		Jefferson
*Fisher Creek	9100	11	9S	14E	S,P,T	Upper Yellowstone
Five-Bull	5700	25	20N	10W		Teton-Marias-Sun
*Flattop Mountain	6300	12	35N	18W	S,P,T	Flathead
Fleecer Ridge	7500	3	1N	10W		Big Hole
Foolhen	8280	11	1S	13W		Big Hole
Forest Lake	6400	26	6N	10E		Musselshell
Four Mile	6900	5	4S	2W	P	Madison
Fourth of July	3450	19	34N	33W		Kootenai
Fred Burr Pass	8000	12	6N	13W		Clark Fork
Freight Creek	6000	13	26N	10W		Teton-Marias-Sun
Friday Hill	4620	19	34N	33W		Kootenai
*Frohner Meadows	6480	23	8N	5W	S,P,T	Missouri Main Stem
Garver Creek	4250	18	37N	32W	S,P,T,W	Kootenai
Gibbons Pass	7100	3	2S	19W		Bitterroot
Goat Mountain	7000	20	22N	10W		Teton-Marias-Sun
Gold Creek Lake	7200	14	8N	12W		Clark Fork
Gold Stone	8100	11	8S	16W		Beaverhead
Grasshopper	7000	19	9N	8E		Missouri Main Stem
*Grave Creek	4300	1	16N	25W	S,P,T	Kootenai
Griffin Creek Divide	5150	11	28N	25W		Flathead
Grizzly Peak	8400	26	7S	19E		Upper Yellowstone
Gunslight Lake	6300	30	26N	13W		Flathead
*Hand Creek	5035	6	29N	25W	S,P,T	Flathead
Hawkins Lake	6450	18	37N	33W	S,P,T,W	Kootenai
Haymaker	8050	16	11N	12E		Musselshell
Heart Lake Trail	4800	11	14N	27W		Clark Fork
Hebgen Dam	6550	22	11S	3E		Madison
Hell Roaring Divide	5770	35	32N	22W		Flathead
Herrig Junction	4850	19	34N	23W	P	Flathead
Highwood Divide	5650	16	19N	9E	P	Missouri Main Stem
Highwood Station	4600	20	20N	9E	P	Missouri Main Stem
Holbrook	4530	18	21N	13W	A	Flathead
Hood Meadow	6600	22	4S	6E		Gallatin
*Hoodoo Basin	6000	17	14N	27W	S,P,T	Clark Fork
Hoodoo Creek	5900	16	14N	27W		Clark Fork
Iceberg Lake #3	5600	1	35N	17W		St. Mary
Independence	7850	21	7S	12E		Upper Yellowstone
Intergaard	6450	6	5N	13W		Clark Fork
Jack Creek	6650	1	6S	1E		Madison
Jahnke Lake Trail	7200	24	7S	16W		Big Hole
Johnson Park	6450	16	10N	11E	P	Musselshell
Josephine Lower #9	4900	22	35N	16W		St. Mary
Keeler Creek	3300	25	30N	35W		Kootenai
King's Hill	7500	34	13N	8E		Missouri Main Stem
Kishenehn	3890	14	37N	22W		Flathead
Kiwanis Camp	3720	9	29N	16E	P,T,W	Milk
*Krait Creek	4750	4	19N	17W	S,P,T	Flathead
Lake Creek	6100	27	11S	1E		Madison
Lakeview Canyon	6930	26	14S	2W		Beaverhead
*Lakeview Ridge	7400	27	14S	2W	S,P,T	Beaverhead
Lemhi Pass	7480	9	10S	15W		Beaverhead
*Lemhi Ridge	8100	4	10S	15W	S,P,T	Beaverhead
*Lick Creek	6860	10	4S	6E	S,P,T	Gallatin
Little Park	7400	22	6S	3E		Gallatin
Logan Creek	4300	34	30N	24W		Flathead
Lone Mountain	8880	25	6S	2E		Gallatin
Lost Horse	5940	5	4N	23W		Bitterroot
Lost Soul	4800	31	33N	29W		Kootenai
*Lower Iwin	7900	12	4S	3W	S,P,T	Madison
Lower Willow Creek	4740	3	9N	14W	P,NSC	Clark Fork
*Lubrecht Flume	4680	13	13N	14W	S,P,T	Clark Fork
Lubrecht Forest #3	5450	19	13N	14W		Clark Fork
Lubrecht Forest #4	4650	23	13N	15W		Clark Fork
Lubrecht Forest #6	4040	11	13N	15W		Clark Fork
Lubrecht Hydroplot	4200	22	13N	14W		Clark Fork
Madison Plateau	7750	28	14S	5E	S,P	Madison
*Many Glacier	4960	10	35N	17W	S,P,T	St Mary
Marias Pass	5250	31	30N	13W		Teton-Marias-Sun
Maynard Creek	6210	19	1N	7E	S,P	Gallatin
Middle Mill Creek	7850	17	4S	3W		Ruby
Mill Creek	7500	31	6S	11E	P	Upper Yellowstone
Mineral Creek	4000	34	35N	17W		Flathead
*Monument Peak	8800	16	7S	12E	S,P,T	Upper Yellowstone
Moulton Reservoir	6850	17	4N	7W		Clark Fork
Mount Allen #7	5700	27	35N	16W		St Mary
*Mount Lockhart	6400	18	25N	9W	S,P,T	Teton-Marias-Sun
Mudd Lake	7650	24	2N	15W		Big Hole
*Mule Creek	8300	9	5S	11W	S,P,T	Big Hole
*Nevada Creek	6480	6	12N	7W	S,P,T	Clark Fork
New World	6700	24	3S	6E		Gallatin
Newton Mountain	5600	23	34N	34W		Kootenai
*Nez Perce Camp	5580	19	1S	23W	S,P,T	Bitterroot
Nez Perce Creek	6500	16	4N	6W		Jefferson
Nez Perce Pass	6570	25	1S	24W		Bitterroot
*Noisy Basin	6040	25	28N	19W	S,P,T	Flathead
*North Fork Elk Creek	6250	20	13N	13W	S,P,T	Clark Fork
North Fork Jacko	6330	3	17N	17W		Flathead
North Meadow	7500	24	3S	3W		Madison
*Northeast Entrance	7400	33	9S	14E	S,P,T	Upper Yellowstone
Notch	8500	18	11S	4W		Ruby
Ophir Park	7150	13	11N	8W		Clark Fork
Palisade Creek	8250	3	2N	15W		Big Hole
Peterson Meadows	7200	2	4N	14W	S,P	Clark Fork
Picket Pin O	9450	36	4S	13E	A	Upper Yellowstone
Picket Pin Lower	6200	1	5S	14E	P	Upper Yellowstone
Picket Pin Middle	7250	3	5S	14E		Upper Yellowstone
Picket Pin Upper	8100	32	4S	14E	P	Upper Yellowstone
*Pickfoot Creek	6650	31	10N	4E	S,P,T	Missouri Main Stem
Piegan Pass #6	5500	27	35N	16W		St Mary
*Pike Creek	5930	5	29N	13W	S,P,T	Teton-Marias-Sun
Pipestone Pass	7200	10	1N	7W		Jefferson
*Placer Basin	8830	11	5S	13E	A,S,P,T	Upper Yellowstone
PMC Headquarters	3656	34	6S	23E	P,W,T,NSC	Upper Yellowstone
Poorman Creek	5100	5	27N	31W	S,P,T,W	Kootenai
*Porcupine	6500	10	4N	10E	S,P,T	Upper Yellowstone
Potomageton Park	7150	33	10S	3E		Madison
Ptarmigan #8	5800	36	36N	17W		St. Mary
Red Mountain	6000	4	36N	29W		Kootenai
Red Top	5260	14	34N	34W		Kootenai
Rock Creek	5600	7	12N	18E	P	Judith
Rock Creek Meadows	8160	34	7S	5E	P	Gallatin
*Rocker Peak	8000	17	7N	5W	S,P,T	Jefferson
Rocky Boy	4700	22	28N	16E	S,P	Milk
Sacajawea	6550	36	2N	6E		Upper Yellowstone
*Saddle Mountain	7940	5	2S	19W	S,P,T	Bitterroot
Sentinel Creek	8300	17	10S	3E		Madison
*Shower Falls	8100	14	5S	6E	S,P,T	Gallatin
*Silver Run	6630	11	8S	19E	S,P,T	Upper Yellowstone
*Skalkaho Summit	7260	30	6N	17W	S,P,T	Clark Fork
*Skylark Trail	6200	29	19N	17W	S,P,T	Flathead
Slag-A-Melt Lake	8750	29	5S	17W		Big Hole
Slide Rock Mountain	7100	35	10N	16W		Clark Fork
Smuggler Mine	6960	24	4S	4W		Ruby
*South Fork Shields	8100	13	4N	10E	S,P,T	Upper Yellowstone
Spotted Bear Mountain	7000	23	25N	15W	A	Flathead
*Spur Park	8100	20	12N	9E	S,P,T	Judith
*Stahl Peak	6030	5	36N	25W	S,P,T	Kootenai
Star Lake E	9650	11	8S	15E	A	Upper Yellowstone
Stemple Pass	6600	16	13N	7W		Missouri Main Stem
Storm Lake	7780	19	4N	13W		Clark Fork
Stryker Basin	6180	26	34N	24W	P	Flathead
Stuart Mill	6500	19	5N	13W		Clark Fork
Stuart Mountain	7400	6	14N	18W		Clark Fork
Sucker Creek	3960	11	29N	16E	P	Milk
Sugarloaf	7350	13	7N	8W		Clark Fork
Taylor Peaks	8500	26	9S	2E	S,P	Gallatin
Taylor Road	4080	19	29N	16E	P	Milk
Ten Mile Lower	6600	12	8N	6W		Missouri Main Stem
Ten Mile Middle	6800	13	8N	6W		Missouri Main Stem
Ten Mile Upper	8000	19	8N	5W		Missouri Main Stem
*Tepee Creek	8000	15	12S	1W	S,P,T	Madison
Timberline Creek	8850	10	8S	18E		Upper Yellowstone
Trail Creek	7090	15	10S	15W		Beaverhead
Trinkus Lake	6100	9	25N	17W		Flathead
Truman Creek	4060	10	26N	22W		Flathead
TV Mountain	6800	33	15N	19W		Clark Fork
*Twelvemile Creek	5600	34	5N	23W	S,P,T	Bitterroot
Twenty-One Mile	7150	1	11S	5E		Gallatin
Twin Creeks	3580	25	26N	16W	A	Flathead
*Twin Lakes	6510	32	5N	23W	S,P,T	Bitterroot
Upper Halfand Lake	6200	28	20N	15W		Flathead
*Waldron	5600	17	25N	9W	S,P,T	Teton-Marias-Sun
*Warm Springs	7800	13	6N	13W	S,P,T	Clark Fork
Weasel Divide	5450	20	37N	24W		Kootenai
West Rosebud	7500	9	7S	16E		Upper Yellowstone
West Yellowstone	6700	34	13S	5E	S	Madison
*Whiskey Creek	6800	19	14S	5E	S,P,T	Madison
*White Mill	8700	18	9S	15E	S,P,T	Upper Yellowstone
White Pine Ridge	8850	18	14S	9W		Beaverhead
Willow Creek	6500	31	7S	20E		Upper Yellowstone
*Wood Creek	5960	36	20N	10W	S,P,T	Teton-Marias-Sun
Wrong Creek	5700	32	25N	10W		Teton-Marias-Sun
Wrong Ridge	6800	17	25N	10W		Teton-Marias-Sun
WYOMING						
*Bald Mountain	9380	29	56N	91W	S,P,T	Big Horn
*Beartooth Lake	9275	--	---	---	S,P,T	Upper Yellowstone
*Burgess R S. No 2	7880	36	56N	89W	S,P,T	Tongue
*Canyon	7940	--	---	---	S,P,T	Upper Yellowstone
East Entrance	6960	17	52N	109W		Big Horn
*Evening Star	9200	20	54N	107W	S,P,T	Upper Yellowstone
Five Springs Falls	7620	20	56N	92W		Big Horn
Lake Camp	7780	--	---	---		Upper Yellowstone
Lupine Creek	7380	--	---	---		Upper Yellowstone
Norris Basin	7500	--	---	---		Madison
Old Faithful	7400	27	52N	116W		Madison
*Parker's Peak	9400	19	55N	108W	S,P,T	Upper Yellowstone
Steamboat Point	7560	29	56N	87W		Tongue
*Sylvan Lake	8420	--	---	---	S,P,T	Upper Yellowstone
Sylvan Pass	7100	--	---	---		Upper Yellowstone
Thumb Divide	7980	--	---	---		Upper Yellowstone
*Two Ocean Plateau	9160	6	48N	111W	S,P,T	Snake
Wolverine	7650	29	55N	106W		Upper Yellowstone
IDAHO						
*Above Burke	4100	11	48N	5E	S,P,T	Spokane
Bear Mountain	5400	9	57N	3E	S,P,T	Pend O'Reille
Big Springs	6400	4	13N	44E		Snake
Blue Ledge Mine	6700	27	13N	38E		Snake
Camp Creek	6800	21	13N	36E		Snake
*Crab Creek	6200	6	12N	39E	S,P,T	Snake
Halverson Creek	4850	3	57N	3E		Kootenai
Island Park	6290	28	13N	43E		Snake
Kilgore	6200	6	12N	39E		Snake
Kit Carson	5020	4	27N	15E		Clearwater
Lolo Pass	5240	16	38N	15E		Clearwater
*Lookout	5120	4	47N	6E	S,P,T	Spokane
Moose Creek	6200	14	27N	21E		Salmon
Savage Pass	6170	18	36N	15E		Clearwater
Sawtell Mountain	8720	7	14N	43E		Snake
*Sunset	5600	33	49N	5E	A,S,P,T	Spokane
Targhee Pass	7000	32	16N	44E		Snake
Valley View	6740	7	15N	44E		Snake
White Elephant	7700	17	14N	43E		Snake

LEGEND

*SNOTEL site - data transmitted daily by telemetry

[1]Blank refers to snow course only at site

S = Snow pillow also
P = Precipitation gage also
T = Max-min temperature also
W = Wind run also
A = Aerial marker also
NSC = No snow course